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ABSTRACT

Evaluation of the three-year career education project in 12 of the Buffalo, New York public schools focuses on changes in pupils' knowledge of occupational information and the clarity, consistency, and reality of vocational interests. An occupational knowledge pre/post-test and occupational interest questionnaire were administered to 359 fourth and fifth graders at 10 elementary schools and 238 eighth and ninth graders at four schools. Pupils at both levels showed a significant increase in knowledge about vocations, an increased interest in artistic occupations, and a decreased interest in conventional occupations. At the junior high level, boys showed more consistency than girls during the project, and a high correlation was indicated between pupils' self-perceived ability and their vocational interest. Responses from six principals and 92 teachers to an open-ended questionnaire were mostly positive, with most faculty identifying the career education project closely with the counselor. Some of the career education activities observed were: an employment service, a plant-growing unit, role playing with puppets, writing vocational autobiographies starting with their parents and grandparents, using newspaper want-ads, group counseling related to rethinking vocational sex roles, and making filmstrips of students' vocational background and future. Tabulated questionnaire responses are appended. (EC)

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Summary Evaluation

of

Career Education Project

for

Buffalo Public School System

From early autumn of 1972 through spring of 1975 a Career Education Project was conducted in twelve of the Buffalo Public Schools. These twelve schools participated in the Project during all three years of its existence. During the final year three schools were added to the Project. The Project was funded with federal funds and its major purpose was "to provide students with experience and knowledge that will serve as a basis upon which appropriate educational and occupational choices can be made at future major decision points." Two objectives were sought for each child: 1) "an ever more mature appreciation of the personal and social implications of becoming a worker and 2) an increased understanding of the specific tasks required for gaining and maintaining employment".

Rationale for Evaluation

Most project evaluations are empirical and hence their usefulness lies in the analysis of the actual data gathered. For the evaluation of the Career Education Project we decided to make the evaluation somewhat theoretically based; that is, to collect empirical data in the usual manner, but to be guided in what data to collect by a theory of vocational choice or development. Such an approach has the merits of normal empirical studies plus the advantages of adding to knowledge about the theory and of multiplying the usefulness of the data collected by studying not only its prima facie content; but studying the theoretical concepts generated from the data. For example, in Holland's theory of vocational choice (the theory employed

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in this study) there is a concept called "homogeneity" which refers to the clarity or degree of differentiation of a person's vocational choice. Empirically, data are collected on each of Holland's six vocational interest factors; then in addition to being able to examine a person's vocational interests, we can study the person's degree of homogeneity because homogeneity is operationally defined by subtracting a person's lowest interest score from his highest interest score and comparing the result with normative table of homogeneity scores. Hence, by gathering data on only six factors of vocational interest, we are able to study other variables of importance because of the theory behind the data collected.

In conducting the evaluation we attempted to accomplish three general objectives. First, we wanted to evaluate any changes in pupils' knowledge of occupational and vocational information. Secondly, we hoped to assess the clarity, consistency, and reality of the pupils vocational interests. Thirdly, we wanted to generate information that would be useful to the teachers and counselors in conducting the program.

A Theory of Vocational Choice

The theory used as a basis for much of the data collection was Holland's Theory of Vocational Choice. Holland's theory was chosen for several reasons; it is the only theory of vocational choice for which has been developed an easily administered interest inventory enabling concepts in the theory to be measured, it has been widely used in research (tho mostly with high school seniors and college students), and it is a basically simple one which can be applied and understood by students, teachers, and counselors. Indeed since the evaluation of this Project began, some counselors at the junior high school level began to institute programs designed to enhance vocational development based on Holland's theory.

Holland's theory has been adequately outlined in many sources (e.g., Holland, 1959, 1966, 1973) so we will only summarize it briefly here by saying that Holland states that there are six general types of people and a corresponding six types of environments. Each person bears varifying degrees of resemblance to the six types of people and people working at a particular job tend to have personalities which resemble each other more than they resemble people working in other jobs. Thus each occupation, because of the similarity of the people in it, can be classified into one of the six basic types. The types are:

1) Realistic - outdoor, mechanical, traditionally masculine people; e.g., farmer, forester, TV repairman;

2) Investigative - scientific, logical, intellectual people, e.g., chemist, arithmetic teacher

3) Artistic - creative, fine arts type people; e.g., musician, journalist, interior decorator

4) Social - gregarious people interested in helping others; e.g., teachers, social workers;

5) Enterprising - status, success, and power oriented people; e.g., politician, salesman, lawyer;

6) Conventional - focused, structured, conservative followers; e.g., bank clerks, civil servants

A person's dominant personality type or area of vocational interest Holland calls one's "high point code" and a person's secondary personality type or area of vocational interst is called his "secondary code". Hence a woman who mainly wants to be a kindergarten teacher (Social occupation) but who also likes to write short stories and poetry (Artistic activities) has a Social high point code and an Artistic secondary code. [Through research conducted over the last 16 years Holland has classified nearly all common occupations into one of his six types].

Some of the above types are closely related to each other both logically and empirically as verified by correlational studies. Two types closely related to each other are called "consistent". The consistent types are as follows: Realistic is consistent with Conventional and Investigative; Investigative is consistent with Realistic and Artistic; Artistic is consistent with Investigative and Social; Social is consistent with Artistic and Enterprising; Enterprising is consistent with Social and Conventional; and Conventional is consistent with Enterprising and Realistic. According to the theory people are consistent if their high point code and secondary code are consistent.

Another concept used in the theory is homogeneity; that is, the degree to which a person's interests are homogeneous or clearly specified as opposed to having heterogeneous or diffuse and unclear interests. The more clearly a person's interests fits into one interest category to the relative exclusion of the other the more homogeneous that person is. Recently, Holland has used the term differentiation instead of homogeneity; but the meaning of the two terms is the same.

Procedures and Method of Evaluation

A pretest - posttest approach to evaluation was employed meaning that each subject serves as his own control group. This approach was chosen over the experimental group-control group design because of the practical and ethical difficulties of randomly assigning some subjects to treatment groups and having to exclude others. Additionally our approach enabled us to assess changes in pupils over the six month interval during which the students were studied.

Instrumentation

At both the elementary and junior high school levels it was decided to evaluate two general areas - knowledge about occupations or job awareness and occupational or vocational interests. Accordingly four separate instruments were developed in consultation with some of the counselors in the Project.

At the junior high level we constructed a 52 item test of knowledge about jobs. Eighteen of the 52 items dealt with students; knowledge of the data-people-things, framework for viewing occupations and ten items dealt with career ladder and job family notions. The remaining questions dealt with general occupational knowledge. At the elementary level we constructed a simple 25 item three response multiple choice test of job knowledge. Both tests were constructed to be of low item difficulty so that in addition to serving as a mechanism for evaluation, the pupils could have a sense of accomplishment since they would probably know the correct answers.

Occupational interest questionnaires similar to each other in format were developed for the elementary and junior high school level. These questionnaires consisted of four lists of 12 jobs each (three lists at the elementary level). Two of the twelve jobs in each list were from each of Holland's six vocational categories. Pupils were instructed to place an "L" beside the four jobs they would like to work at the most and a "D" beside the four jobs they would least like to work at. In addition subjects were asked to pick the four jobs out of each list which they felt they had the most ability to perform and to pick the two jobs out of each list that the students' felt were the most important and valuable to society. Scores

on each of Holland's six factors were tabulated on the interest measures, the ability measures, and the value to society measures. The interest scores were the ones of major concern in the evaluation of the Project.

All instruments were administered in the schools by the teachers and guidance counselors. Directions were read aloud at the elementary level. All scoring and data analysis was carried out by the third party evaluators. Initial testing was conducted in October and the final testing was completed during April.

Results of Elementary Level

Subjects

359 fourth and fifth graders (see Table 1) at ten elementary schools served as subjects for the evaluation at the elementary level. The pupils evaluated were chosen by the teachers and guidance counselors and are but a portion of the students who participated in the Project. At the junior high level 238 eighth and ninth graders at four schools were surveyed. A fifth junior high school participated in the Project and its students were pretested; but due to scheduling problems it was not possible to posttest the pupils in time to include them in the evaluation.

Summary of Results for Elementary Schools

As has been the case in the previous two years (see Table 12) of the Project the clearest and most consistent result of the Project seems to be an increase in occupational knowledge for pupils of both sexes and at each school (see Table 2). There are differences in the mean knowledge scores for the several schools ranging on the pretest from an average of 56 percent to 71 percent correct compared to a range of 59 percent correct to 84 percent correct on the posttest. There is no doubt that scores on the vocational

knowledge test increased significantly during the Project. (The overall increase was significant at the $p < .01$ level).

Changes between pre and post testing on the six basic interest scales are presented in tables 3-8. For the current year the ranking of pupils' interests on the six scales for both boys and girls is the same as it has been in the two previous years. Boys consistently score highest on the Realistic scale followed in order by the Intellectual, Social, Enterprising, Artistic, and Conventional scales. Girls consistently score highest on the Social scale followed by the Artistic; Conventional, Enterprising, Intellectual and Realistic scales. It is apparent that the sexes express very different occupational interests. Indeed the correlation between sexes interest patterns is -.68 (using Spearman's rho); i.e. a negative correlation indicating a tendency for the occupations of most interest to boys to be of least interest to girls and vice versa.

During the 1974-75 year students of both sexes evidenced increased interest in Realistic, Investigative, and, to a lesser extent, Conventional occupations. On the Artistic scale girls showed significantly increased interest; but boys did not. Scores on the Social and Enterprising scales seemed to decrease slightly; but not significantly, during the year.

The specific interest patterns and changes for a given school can be ascertained by examination of tables 3-8. For example school #28 shows a pattern of change different from the norm. Pupils at this school showed relatively large increased interest in Artistic, Social and Enterprising occupations while demonstrating decreased interest in Realistic, Investigative, and Conventional occupations.

Over the three year period of the Project the most stable changes in the interest scales were a consistent increase in Artistic scores for pupils

of both sexes and a consistent decrease in Social scores for girls, but not boys.

In examining the homogeneity scores (homogeneity you'll recall represents the clarity of a person's interests) some interesting results appeared (see Table 9). Boys clearly increased in homogeneity while girls evidenced an even larger decrease. One could speculate that girls occupational stereotypes are broken down somewhat upon exposure to new vocational information and exploration of their own vocational interests; while boys may have less unlearning to do and may get their previous preferences clarified a bit.

Another interesting finding is that whatever occurred to effect homogeneity scores, it occurred differentially at the several schools; e.g. schools 41 and 28 showed large increases in homogeneity, schools 33, 51, 60, and 79 showed slight increases, but schools 4, 6, 37 and 56 showed large decreases in homogeneity.

Consistency represents the extent to which a person's main vocational interests are in compatible and related fields. Percentages of consistent pupils at each school and for each sex are shown in table 10. It is interesting to compare consistency and homogeneity. During the period of the Project boys became much more consistent and homogeneous while girls became less so. Of the six schools whose pupils increased in homogeneity five also increased their consistency from pre to post testing and of the four schools whose pupils decreased in homogeneity, three also showed a decrease in consistency. Apparently a pupil who has a relatively well differentiated and clear occupational choice is also likely to evidence a pattern of interests that are compatible with each other.

In addition to measures of vocational interest and knowledge pupils were given a list of occupations and asked to indicate which ones were of

most value or worth to society. In table 11 the changes on these "value to society" scales are reported. It seems that during the course of the Project pupil's opinions about the importance of Conventional, Enterprising, and Social occupations decreased while there was some tendency for investigative occupations to be viewed as more important.

Conclusions

A very general summary of the evaluation results would include three main points. First and foremost, in each of the three years of the Project, pupils of both sexes and all schools seemed to become much more knowledgeable about vocations and specific jobs. Second there was a clear change in students degree of interest in Artistic occupations during the tenure of the Project. Third, apparently pupils come to think during the course of the Project that investigative occupations are of greater importance and Conventional occupations of less importance that they thought at the start of the school year.

Results at Junior High Level

Pupils of both sexes and at each of the schools showed a significant increase in knowledge about vocations during the course of the Project. The pre and posttest means for boys and girls and for each school are shown in table 13. The results for the 1974-75 year in general parallel those for the previous two years of the Project in that pupils vocational knowledge scores apparently went up every year. One would expect such a finding considering that the purpose of the Project was, among other things, to improve students knowledge about the world of work. It should be reassuring to have this expectation confirmed.

Means on the pre and posttest for boys, girls and each school on the six basic interest scales are contained in tables 14-19. The clearest

results were that pupils of both sexes and at each school indicated increased interest in Artistic vocations. This increased interest in Artistic occupations occurred in the two previous years of the Project and also occurred the elementary level. It is interesting to note that fewer parents work in Artistic occupations than any other type of job. Only three parents out of the total of 462 parents of junior high pupils worked in Artistic jobs. Apparently pupils know so little about Artistic jobs that what knowledge they learn about such occupations leads them to be more interested in Artistic vocations at the end of the school year than they were at the beginning.

Incidentally, with respect to the jobs of the parents of the subjects of the evaluation, 83 percent of the fathers are employed in Realistic occupations. The next most populous category is Conventional with only six percent. For the mothers, 77 percent were classified as having Social occupations (many as housewives) while nine percent worked in Conventional and Realistic jobs.

Another trend noted in interest scores over the year was a decreased interest in Conventional vocations by pupils of both sexes and at three of the four schools. A diminished interest in Conventional jobs occurred in each of the two prior years of the Project and would appear to be a reliable occurrance. No changes of any consequence took place on the other four interest scales or on the measure of homogeneity or certainty of vocational choice (see table 20).

Table 21 contains the percentage of consistent pupils of each sex and at each school on both pre and posttesting. What seems apparent is that during the Project boys become more consistent while girls become less consistent and that there are very different trends among the schools

with pupils at two schools becoming more consistent and pupils at the other two schools becoming less so. The differing results among the schools are hard to account for; but that boys become more consistent while girls become less so is clear. Previous year's results were not similar in this regard, though the findings at the elementary level were similar.

During the school year pupils apparently came to feel that Social occupations were of more importance to society and that Realistic jobs were of less value. These trends also appeared in the previous year of the Project. The pre and posttest means on the six "value to society" scales are shown in table 22. No changes of any scope occurred on the other four scales or on the ability scales (see table 23). That is, pupils apparently didn't alter significantly their self perceptions of their own vocational abilities during the Project.

It is interesting to note that when the magnitude of the scores on the six interest scales and the six ability scales are compared, they correlate very highly with each other (Spearman's rho = .94). One might conclude that there is a tendency for students to feel they have ability in vocations they're interested in; or conversely, they have interest in jobs in which they think they have some skill. The correlation between ability and interest for the 1973-74 data was also .94.

Major Conclusions at Junior High Level

One, pupils show a significant increase in vocational knowledge during the course of the Project. Two, students become more interested in Artistic occupations and less interested in Conventional ones. Three, boys become more consistent and girls become less consistent during the Project. Four, there was a high correlation between pupils' self-perceived ability and their vocational interest.

Teachers Evaluation

In audition to surveying pupils with pre and post tests to get some indication of their reaction to the Career Education Project, we also distributed an open ended questionnaire to some of the teachers who were effected by the Project. In so doing we hoped to learn how the teachers felt about the importance or effects of the Project. We asked each teacher questions: the extent to which he/she was involved with the Project, their assessment of the projects impact on students, the extant to which the Project was accepted by the faculty and staff, and what they felt were the most and least beneficial aspects of the Project. Six principals returned questionnaires and 92 teachers turned in answers to the questionnaire.

In examining the 98 questionnaires we found only five faculty members who commented critically on the Project. The remarks critical of the Project are presented below. The list includes all the comments of a negative or pessimistic tone.

a. "The student's reaction was lukewarm. For my students in grade 6, the material available was too technical. The content was over their head."

b. "The program was not that well publicized".

c. "The program included too much. It "needed too much outside help".

d. The program "does present a problem to the classroom teacher. Children find too many excuses to visit the guidance office. When a teacher objects it lessens the teacher authority".

e. "The faculty isn't overwhelmed but will accept the Career Ed program willingly provided it's an integral part of the curriculum".

Most of all the respondents had quite positive comments to make about the Project. A very small sample of such comments appear below:

a. "Many students reported that their careers class was the most interesting, relevant, and worthwhile course they took".

b. "I like most the way the program is presented. It is flexible enough to encompass and supplement all school activities".

c. "My assessment of the program is that it is an important and valuable part of the school's success with the students, faculty, and the community".

d. "The children enjoyed the program immensely. Even parents volunteered their services to talk to the children about their jobs".

e. "It's given them a good idea of the different types of work people do and an idea of the training necessary for some jobs".

f. "Students seemed to have increased their awareness of their emotions, capabilities and talents...".

g. "Excellent and should be continued. Absolutely no complaints. Our program could easily serve as a model for others".

h. "The students appear to like the program...and volunteer to go even on their own time."

i. "I think the program is great. It stimulates discussion both on a student and faculty level".

j. "I like the program because it gives the children a feeling of success while learning a skill needed in the real world".

k. "I feel anyone who has not been active in this program just hasn't involved himself enough to experience how much it could help his children and the classroom".

l. "The program, particularly in our socio-economic area, has made the children aware of careers which they haven't been exposed to or even thought of".

m. "I have noticed much social growth in my children thanks to career education projects. They are more aware of the world around them and friendlier toward each other".

The above comments relate to the "program"; but by far the greatest number of positive comments were about the counselor. Most faculty identified the Career Education Project extremely closely with the counselor. To most, the counselor was the heart of the Project and the laudatory remarks of the teachers were mostly in praise of the counselor and his/her efforts.

In addition to surveying pupils and teachers involved with the Project we visited schools to observe first hand how the counselors were implementing the Project and how the pupils seemed to be responding to the activities of the Project.

We encountered a variety of activities which included such things as: a. an employment service offering such jobs as reading tutor, library helper, messenger, nurse helper, etc. where students filled out job applications, were interviewed, trained, and evaluated on their work; b., use of movies relating to different jobs followed by counselor led discussions of different aspects and ideas about the job; c., growing a wide variety of plants in a unit combining science with floral and nursery occupations, and children putting on puppet shows in a puppet theater to play the roles involved in certain jobs., d. writing vocational autobiographies starting with their parents and grandparents, discussing their hobbies, jobs around the house, and interests, and concluding with the occupation they are currently "expecting" to enter; e. use of the newspaper want-ad section to learn about categories skill and educational prerequisites, wages and salaries, hours, working conditions, and availability, etc. of certain jobs, f. group counseling session designed to help pupils get in touch with their feelings out of which later might emerge increased vocational awareness; g. group guidance sessions focused on looking at and rethinking sex roles and stereotypes in vocations; h., integrating vocational issues into the curriculum through a very popular wood and metal shop class for girls where theory and practice were combined by an enthusiastic teacher; and i. pupils making actual film strips of their vocational background and future, hence learning about film-making and projectors, film, tapes, and tape recorders while becoming more aware of their vocational lives.

The interest and enthusiasm of the students was readily apparent especially in activities where they were participating. For example, I would say that showing films, though useful, is the least stimulating activity to the students that I observed.

More than the students interest and enthusiasm however, I think that the most clear and predominant finding, though a subjective one, from the school visit is that the degree of success achieved through the Project is almost entirely a function of the personnel, teacher or counselor, involved. The materials, films, publications, etc. are nice and can make a counselor or teacher's job easier. On the other hand, good materials can enable a teacher or counselor to "hide out" and become lazy by assuming that the materials will do the work.

On the basis of my observations I would argue for putting money into good counselors and teachers because they are the program. If they're good, you'll have a quality program and if not you won't. The teacher questionnaires bore this out. Additionally, a colleague of mine at the University of Nebraska, who has been evaluating Career Education Projects told me he's come to the same conclusion. I suppose such a conclusion is not at all surprising; though we both agreed on a more "sticky" conclusion, namely that in-service training and supplying a number of ideas and materials really won't make a poor or average counselor or teacher into a good one. It's my personal view that good teachers and counselors are more apt to be born than made, though I doubt that enrichment programs do any harm and do help people do a little better.

If the above conclusion is anywhere near accurate, then we should probably be putting our efforts into developing better hiring and screening methods; that is, work on prevention rather than cures.

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Table I

Number of Pupils Pre and Posttested - 1974-75

School	Number Posttested 1974-75	1973-74	1972-73
Southside	76	87	69
Clinton	-	36	76
West Hertel	77	72	93
Fillmore	58	--	--
P.S. 67 (Jr. H.S.)	27	--	--
P.S. 56	35	--	--
P.S. 41	36	36	24
P.S. 28	42	36	36
P.S. 4	33	26	25
P.S. 37	31	37	23
P.S. 51	38	38	41
P.S. 60	33	38	36
P.S. 33	38	40	34
P.S. 6	36	67	37
P.S. 79	37	35	34
Total Jr. H.S.	238	195	238
Total Elem.	359	353	290
Grand Total	597	548	528

Table 2

Knowledge Pre and Posttest Scores

Group	Pretest Mean	Posttest Mean
overall	15.9	18.3
boys	16.7	18.8
girls	15.2	17.9
P.S. 56	17.5	18.1
P.S. 41	15.5	17.9
P.S. 28	14.9	19.7
P.S. 4	14.9	17.6
P.S. 37	14.0	14.9
P.S. 51	15.4	17.1
P.S. 60	16.6	20.9
P.S. 33	17.9	19.5
P.S. 6	15.9	18.1
P.S. 79	15.5	18.4

Table 3

Mean Realistic Interest Scores

Group	Pretest Mean	Posttest Mean
overall	8.3	9.0
boys	11.7	12.2
girls	5.1	5.8
P.S. 56	7.7	8.4
P.S. 41	8.8	10.2
P.S. 28	10.4	9.8
P.S. 4	8.0	7.6
P.S. 37	6.0	6.6
P.S. 51	9.2	10.4
P.S. 60	7.5	7.5
P.S. 33	9.8	10.4
P.S. 6	5.3	5.6
P.S. 79	8.4	9.9

Table 4

Mean Investigative Interest Scores

Group	Pretest Mean	Posttest Mean
overall	7.8	8.5
boys	9.3.	9.7
girls	6.6	7.1
P.S. 56	10.7	9.9
P.S. 41	7.1	8.5
P.S. 28	8.2	7.8
P.S. 4	7.7	8.2
P.S. 37	7.2	8.0
P.S. 51	6.8	7.2
P.S. 60	8.6	8.8
P.S. 33	8.3	9.1
P.S. 6	5.6	7.0
P.S. 79	8.3	8.6

Table 5

Mean Artistic Interest Scores

Group	Pretest Mean	Posttest Mean
overall	8.9	9.7
boys	7.1	7.2
girls	10.2	10.8
P.S. 56	9.1	9.9
P.S. 41	9.4	8.3
P.S. 28	8.2	9.3
P.S. 4	8.9	8.8
P.S. 37	9.1	10.5
P.S. 51	8.7	9.1
P.S. 60	8.8	9.3
P.S. 33	8.7	8.0
P.S. 6	8.7	8.8
P.S. 79	8.3	9.5

Table 6

Mean Social Interest Scores

Group	Pretest Mean	Posttest Mean
overall	11.2	11.0
boys	9.1	8.9
girls	13.3	12.6
P.S. 56	9.9	11.7
P.S. 41	12.2	10.6
P.S. 28	9.9	10.6
P.S. 4	11.5	10.5
P.S. 37	13.1	12.0
P.S. 51	11.5	10.4
P.S. 60	11.4	10.8
P.S. 33	10.0	9.9
P.S. 6	12.3	12.1
P.S. 79	11.7	9.8

Table 7

Mean Enterprising Interest Scores

Group	Pretest Mean	Posttest Mean
overall	8.0	8.3
boys	8.6	8.8
girls	7.2	7.3
P.S. 56	8.6	8.8
P.S. 41.	7.8	6.9
P.S. 28	7.7	8.2
P.S. 4	7.8	9.3
P.S. 37	8.3	7.4
P.S. 51	7.7	7.1
P.S. 60	7.4	7.3
P.S. 33	7.3	8.3
P.S. 6	9.1	9.4
P.S. 79	7.2	7.2

Table 8

Mean Conventional Interest Scores

Group	Pretest Mean	Posttest Mean
overall	7.6	8.2
boys	6.0	6.3
girls	9.1	9.5
P.S. 56	5.7	7.5
P.S. 41	6.9	7.3
P.S. 28	7.4	6.4
P.S. 4	8.1	8.1
P.S. 37	7.7	8.7
P.S. 51	7.3	7.4
P.S. 60	7.1	9.9
P.S. 33	7.7	6.8
P.S. 6	10.0	9.4
P.S. 79	8.2	8.6

Table 9

Mean Homogeneity Scores

Group	Prestest Mean	Posttest Mean
overall	15.1	15.1
boys	14.4	15.3
girls	15.9	14.8
P.S. 56	15.4	13.6
P.S. 41	13.4	15.0
P.S. 28	14.1	15.2
P.S. 4	14.9	13.3
P.S. 37	15.3	13.8
P.S. 51	16.8	17.2
P.S. 60	15.1	15.3
P.S. 33	15.8	16.2
P.S. 6	16.8	14.8
P.S. 79	14.5	14.8

Table 10

Pre and Posttest Percentages of Consistent Pupils by Sex and School

Group	Pretest Percent	Posttest Percent
overall	44.6	48.0
boys	42.9	51.6
girls	45.9	44.7
P.S. 56	44.0	41.3
P.S. 41	45.6	50.4
P.S. 28	50.1	48.0
P.S. 4	35.2	50.9
P.S. 37	51.9	48.9
P.S. 51	36.0	40.5
P.S. 60	38.8	60.1
P.S. 33	53.7	47.2
P.S. 6	44.2	36.0
P.S. 79	43.0	52.5

Table II

F-Values and Pre and Posttest Mean

"Value to Society" Interest Scores on the Six Scales

(Elementary Schools)

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Pretest Mean	1.23	1.31	.21	1.21	1.31	.68
Posttest Mean	1.25	1.40	.16	1.09	1.17	.54
F-Value	.08	1.62	1.09	3.19	3.86	5.88
Significance Level	.77	.20	.30	.07	.05	.02

Table 12

Summary of Three Year Pre-Posttest Changes

on the Six Interest Scales and the Knowledge Scale:

Elementary School Level

	Overall		Boys		Girls	
Realistic	Pre	Post	Pre	Post	Pre	Post
1972-73	7.7	7.5	11.7	10.9	3.9	4.3
1973-74	7.4	7.3	10.4	10.5	4.6	4.1
1974-75	8.3	9.0	11.7	12.2	5.1	5.8
Investigative						
1972-73	8.1	7.9	9.3	9.4	7.0	6.5
1973-74	8.1	8.1	9.1	8.8	7.1	7.3
1974-75	7.8	8.5	9.3	9.7	6.6	7.1
Artistic						
1972-73	9.3	9.5	7.7	8.7	10.7	10.2
1973-74	8.8	9.4	7.4	8.0	10.2	10.8
1974-75	8.9	9.7	7.1	7.2	10.2	10.9
Social						
1972-73	10.6	10.7	8.3	9.2	12.8	12.2
1973-74	11.5	11.8	9.2	10.0	13.7	13.6
1974-75	11.2	11.0	9.1	8.9	13.3	12.6
Enterprising						
1972-73	7.7	8.6	9.1	9.1	6.4	8.1
1973-74	7.9	7.6	8.4	8.4	7.4	6.9
1974-75	8.0	8.3	8.6	8.8	7.2	7.3

Table 13

Occupational Knowledge Pre and Posttest Means

Group	Pretest Mean	Posttest Mean
overall	40.5	43.5
boys	40.2	43.2
girls	40.7	43.8
West Hertel	41.3	43.9
Southside	41.2	43.4
Fillmore	39.4	42.0
P.S. 67	38.3	46.1

Table 15

Mean Investigative Interest Scores

Group	Pretest Mean	Posttest Mean
overall	11.1	10.8
boys	11.8	11.3
girls	10.3	10.4
West Hertel	12.7	11.8
Southside	10.2	9.7
Fillmore	11.1	11.4
P.S. 67	9.3	9.7

Table 17

Mean Social Interest Scores

Group	Pretest Mean	Posttest Mean
overall	12.6	12.7
boys	10.2	10.2
girls	15.1	15.3
West Hertel	12.6	12.4
Southside	12.6	13.5
Fillmore	13.6	12.9
P.S. 67	11.8	13.6

Table 18

Mean Enterprising Interest Scores

Group	Pretest Mean	Posttest Mean
overall	11.3	11.2
boys	12.6	12.3
girls	10.1	10.2
West Hertel	10.9	11.2
Southside	11.9	10.8
Fillmore	11.1	11.3
P.S. 67	11.3	10.9

Table 20

Mean Homogeneity Scores

Group	Pretest Mean	Posttest Mean
overall	18.2	17.8
boys	18.2	17.6
girls	18.1	17.9
West Hertel	18.8	17.7
Southside	17.3	18.1
Fillmore	18.9	18.5
P.S. 67	16.8	15.2

Table 21

Pre and Posttest Consistency Percentages by Sex and School

Group	Pretest Percent	Posttest Percent
overall	39.5	39.8
boys	36.8	45.3
girls	42.5	34.3
West Hertel	48.5	32.9
Southside	29.7	43.0
Fillmore	43.2	35.4
P.S. 67	37.9	42.1

Table 22

F-Values and Pre and Posttest

"Value to Society" Means on Six Vocational Scales

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Pretest Mean	1.25	2.46	.37	1.80	1.32	.53
Posttest Mean	1.00	2.50	.36	2.06	1.26	.47
F-value	5.72	.09	.01	5.06	.36	.60
Significance Level	.02	.77	.95	.03	.55	.44

Table 23

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Pretest Mean	2.69	2.31	2.34	2.74	2.40	2.11
Posttest Mean	2.58	2.15	2.31	2.76	2.24	1.87
F-Value	.44	1.00	.06	.02	1.38	2.40
Significance Level	.51	.32	.81	.90	.24	.12

Table 24

Summary of Three Year Pre-Posttest Changes on the Six Interest Scales and Knowledge Scale: Junior High Level

	Overall		Boys		Girls	
Realistic	Pre	Post	Pre	Post	Pre	Post
1972-73	10.3	10.0	13.4	12.9	8.3	8.2
1973-74	11.3	11.7	14.9	15.1	8.8	9.3
1974-75	11.2	11.1	14.5	14.7	8.2	8.5
Investigative						
1972-73	11.7	11.1	12.2	11.5	11.2	11.6
1973-74	10.1	9.5	10.8	10.1	9.7	8.1
1974-75	11.1	10.8	11.8	11.3	10.3	10.4
Artistic						
1972-73	10.6	11.0	9.3	9.9	11.4	11.8
1973-74	11.2	12.1	8.9	10.1	12.7	13.4
1974-75	10.6	11.0	9.5	10.1	11.6	12.2
Social						
1972-73	13.5	13.3	10.2	10.2	15.5	15.3
1973-74	12.7	12.8	10.1	10.5	14.6	14.4
1974-75	12.6	12.7	10.2	10.2	15.1	15.3
Enterprising						
1972-73	10.2	10.9	11.7	11.6	9.1	8.3
1973-74	11.6	11.3	13.2	12.7	10.4	10.3
1974-75	11.3	11.2	12.6	12.3	10.1	10.2

(Table 24 Cont.)

	Overall		Boys		Girls	
Conventional	Pre	Post	Pre	Post	Pre	Post
1972-73	10.6	9.9	8.4	8.8	11.8	10.8
1973-74	10.5	9.8	9.3	8.3	11.3	10.8
1974-75	10.3	9.8	8.7	8.5	11.8	10.8
Knowledge						
1972-73	35.7	39.7	31.9	38.0	38.1	40.2
1973-74	40.9	39.6	41.2	38.6	40.7	41.5
1974-75	40.5	43.5	40.2	43.2	40.7	43.8